DEVELOPMENT OF MODELING INVENTORY AND BUDGETS FOR REGIONAL NO_x SIP CALL

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Chapter I
Introduction

The purpose of this document is to describe the development of the emissions and control data used in the United States (U.S.) Environmental Protection Agency's (EPA) Regional NO_x State Implementation Plan (SIP) Call Final Rulemaking (NFR) and to describe the process for calculation of the associated Statewide budgets.

Chapter II of this document describes the development of the EGU point source data and budget, Chapter III describes the development of the non-EGU point source data and budget, Chapter IV describes the stationary area and nonroad mobile source data and budget, and Chapter V describes the highway mobile source data and budget.

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Chapter II
Electric Generating Unit Point Source Data

A. Development of Base Year Data

The base year electric generating unit (EGU) data base developed for this modeling effort consists of both electric utility units and nonutility electricity generating units. The nonutility electricity generating units include independent power producers (IPPs) and nonutility generators (NUGs). Two alternative base year data sets were developed: one using the higher of 1995 or 1996 heat input (determined at the State-level) and one using 1996 heat input. For each base year data set both seasonal (for budget determination) and daily emission estimates (for modeling) were developed.

Eight data sources were used to develop the base year EGU data:

1. EPA's Acid Rain Data Base (ARDB) (Pechan, 1997c);
2. EPA's 2007 Integrated Planning Model Year 2007 (IPM);
3. EPA's Emission Tracking System/Continuous Emissions Monitoring System (ETS/CEM) (EPA, 1997b);
4. DOE's Form EIA-860 (DOE, 1995a);
5. DOE's Form EIA-767 (DOE, 1995b);
6. EPA's National Emissions Trends Data Base (NET) (EPA, 1997c);
7. DOE's Form EIA-867 (DOE, 1995c); and
8. The OTAG Emission Inventory (Pechan, 1997a).

Each of these data sources is described below.

EPA's Acid Rain Data Base (ARDB) was developed in response to the Acid Rain Program authorized under Title IV. The data base was originally an update to the boiler-based National Allowance Data Base Version 3.11 (NADBV311) which was used in the calculation of the SO_2 allowances as specified in Title IV. Over the last few years, the data base has been expanded to include ETS/CEM 1994-1996 SO_2, NO_x, CO_2, and heat input; as well as 1985-1995 NET utility data, boiler identification, characteristics, and locational data. The existing boilers and planned turbines (as of 1990) in the ARDB are used as units for the EGU.

EPA's 2007 Integrated Planning Model Year 2007 (IPM) data base represents a unit-level disaggregated IPM Clean Air Act (CAA) baseline simulation developed for OTAG modeling. The IPM includes over 7,000 records (nationally) with data on existing electricity generating units. The records are maintained in EPA's National Electric Energy Data System (NEEDS). In general, generator-level utility turbines and engines, as well as nonutility units that are not required to report to EPA under the Title IV program, are used as units for the EGU. Supplemental data, provided by EPA, including the start year, the base year (1994) NO_x rate, and type of ownership, were added to the IPM data base. This file was used to obtain NO_x emissions and heat input data for these units. Where units could be matched to other inventories, actual locational data are included in the IPM; otherwise, county centroids are used.

EPA's Emission Tracking System/Continuous Emissions Monitoring System (ETS/CEM) data contains hourly SO_2, CO_2, NO_x rate, and heat input data at the monitoring stack level and boiler level for all boilers included in the Acid Rain Program that was mandated by Title IV of the Clean Air Act Amendments of 1990 (CAAA). In 1994, data were collected from the 263 Phase I boilers; beginning in 1995, data are collected from Phase II as well as Phase I affected boilers. These data were used for NO_x tons and heat input. Data were provided in a variety of files from EPA.

DOE's Form EIA-860 is an annual utility survey, "Annual Electric Generator Report," that provides utility data on a generator level. Both existing and planned generators are reported; the data include generator identification data, status, capacity, prime mover, and fuel type(s). Units reported on this form were generally only included in the EGU file if they also were included in the IPM file since NO_x tons and heat input are not derivable from Form EIA-860 alone. This form was useful, however, in providing other information, such as prime mover and unit status.

DOE's Form EIA-767 is an annual survey, "Steam-Electric Plant Operation and Design Report," that contains data for fossil fuel steam boilers such as fuel quantity and quality; boiler identification, locational, status, and design information; and FGD scrubber and particulate collector device information. Note that boilers in plants with less than 10 MW do not report all data elements. The relationship between boilers and generators is also provided, along with generator-level generation and nameplate capacity. Note that boilers and generators are not necessarily in a one-to-one correspondence.

EPA's NET fossil fuel steam data base has been developed for EPA for many years. The data base is initially based on DOE's Form EIA-767 data, but the coal NO_x emissions have been superseded by calculations using EPA NO_x rates, and the NO_x, SO_2 and heat input data from ETS/CEM are always used if available. Source Classification Codes (SCCs) are assigned to each boiler based on boiler and fuel characteristics; AP-42 emission factors are always used to calculate VOC, CO, PM10, and PM2.5 emissions. The 1990 and 1995 Trends data bases were used to obtain SCCs, stack parameters, and NO_x tons and heat input.

DOE's Form EIA-867 ("Annual Nonutility Power Producer Report") is similar in content to, although more limited than, the utility Forms EIA-860 and EIA-767. The EIA-867, however, is a confidential form, and aside from the facility identification data (which includes State and capacity), EIA can only provide most data from this form on an aggregated basis. Only a few of the records from this file were ultimately used since it was difficult to obtain NO_x tons, heat input, or locational data unless they matched to another source.

The OTAG data base was developed by collecting and compiling electric utility emission inventory data from States in the OTAG domain. This inventory is for the year 1990 and contains summer day emission estimates, as well as variables required for photochemical modeling. This data base was used to obtain NO_x and locational data.

In general, the operating units in the ARDB identified the steam boilers, while the IPM data base identified the generator-level utility turbines and engines, as well as the nonutility units. While some units originated in the other data bases, their primary purpose was to add variables required for modeling to the units identified by the ARDB or IPM data.

The data from the above sources was further refined by the consideration of comments submitted to the NOx SIP call NPR.

In order for a unit to be used, it had to have enough data to estimate emissions. Data had to be available on either daily or seasonal heat input or daily or seasonal NO_x emissions. The NO_x emission rate was also required, but a default NO_x emission rate from AP-42 was assigned to units that had data on heat input or emissions, and no NO_x rate. The emissions from 421 units could not be estimated because there was no NO_x emissions or heat input information available to EPA for these units. This suggests that these units may not have operated in the summer seasons of 1995 and 1996.

The first step in developing the base year data was to develop a file containing all available heat input, NO_x emissions and NO_x rate information.

1. Seasonal NO_x Tons and Heat Input

The hierarchy for obtaining seasonal NO_x tons and heat input for a particular unit is provided below.

For the 1995/1996 base year:

1. Determine what year of data to use for a given boiler, based on the State that the boiler is in and whether 1996 or 1995 heat input was higher for that State.

2. Based on that boiler year information, use ETS/CEM data to obtain 1996 seasonal NO_x tons and 1996 seasonal heat input, or 1995 seasonal NO_x rate and 1995 seasonal heat input to calculate 1995 seasonal NO_x tons.

3. Based on that boiler year information, use the 1996 projected or 1995 NET data base (Both of which include annual boiler-level ETS/CEM data) for annual NO_x tons and heat input, then convert to seasonal.

4. Use 1990 OTAG file for ozone season day (OSD) NO_x tons and OSD heat input (or July month heat input and divide by 31), then convert to seasonal and forecast.

5. Use IPM NO_x rate and 2007 July heat input, calculate NO_x tons, convert to seasonal, and backcast.

6. If there is a heat input and no NO_x tons or rate, assign an AP-42 default NO_x rate based on SCC and convert to seasonal.

For 1996 base year:

1. Use ETS/CEM 1996 file for seasonal NO_x tons and 1996 seasonal heat input.

2. Use the 1996 projected or 1995 NET data base (both of which include annual boiler-level ETS/CEM data) for annual NO_x tons and heat input, then convert to seasonal.

3. Use 1990 OTAG file for OSD NO_x tons and OSD heat input (or July month heat input and divide by 31), then convert to seasonal and forecast.

4. Use IPM NO_x rate and 2007 July heat input, calculate NO_x tons, convert to seasonal, and backcast.

5. If there is a heat input and no NO_x tons or rate, assign an AP-42 default NO_x rate based on SCC and convert to seasonal.

2. Source Classification Codes (SCCs)

The methodology for assigning SCC is as follows:

1. Match with NET 1995 or 1990 inventory and assign the major SCC (based on heat input) to the boiler.

2. Match with OTAG and assign the major SCC.

3. Assign default SCCs based on prime mover, fuel type, and (in the case of steam units) boiler bottom and firing types.

3. Stack Parameters

The methodology for obtaining stack parameters is as follows:

1. Match with NET 1995 or 1990 inventory and use the stack data.

2. Match with OTAG and use the stack data.

3. Assign default stack parameters, based on prime mover and fuel type, that were

originally developed for the Regional Oxidant Model (ROM). (Note that since stack parameters in IPM were originally developed by matching with OTAG and NET inventories, followed by defaults, any stack parameters obtained from IPM are likely to be default parameters.)

B. 2007 Base Case

The 2007 base case summer season emissions for 2007 were determined using the Integrated Planning Model (IPM). The base case includes all applicable controls required by the CAAA. Applicable controls required for EGUs include Title IV Acid Rain controls and NO_x RACT. Details regarding the IPM model and the method can be found in the Regulatory Impact Analysis (RIA) of the final SIP call (EPA, 1998c). The seasonal unit-specific data for 2007 output from the IPM model was processed using the Emissions Modeling System-95 (EMS) to generate typical ozone season weekday, Saturday, and Sunday allocations for episodic modeling. Appendix A presents the EGU source controls included in the 2007 base case.

C. 2007 Budget Case

The 2007 budget case was developed by applying growth factors and an emission rate to the 1995/1996 base year heat input. Units greater than 25 MWe in the SIP call region had a uniform emission rate of 0.15 lb NO_x/MMBtu applied to them. Units 25MWe or smaller were left at their 2007 base case NO_x emission rate. A detailed file of EGU sources including emissions, growth, and control information used to estimate the 2007 EGU budget is provided in Appendix C of this document.

1. Growth Factors

The growth factors used in the 2007 base case were supplied by EPA and came from the IPM projections. The growth factors are at the State-level (i.e., there was a single growth factor for each State that was applied to all units in that State). Since publication of the SNPR, EPA has revised its estimates of State-specific growth rates from 1996 to 2007. The estimates were interpolated from the average annual growth of each State as forecasted by EPA using the IPM and EPA's baseline electric generation forecast. In developing the average annual growth, EPA relied on unit-specific summer energy use from 2000 to 2010 as forecasted by the IPM. The final growth factors are shown in Table II-1.

The growth factors were applied to the 1995/1996 heat input to get 2007 projected heat input. Emissions were then estimated by multiplying the 2007 projected heat input by the 2007 budget-applicable NO_x rate.

D. EGU Emission Summary

Table II-2 is a State-level summary of the EGU data. It contains both daily and seasonal heat input and NO_x emissions for the 1995/1996 base year, the 1996 base year, and the 2007 budget case.

Table II-1
IPM Growth Factors

State	1996-2007 Growth Factor
Alabama	1.10
Connecticut	0.60
District of Columbia	1.36
Delaware	1.27
Georgia	1.13
Illinois	1.08
Indiana	1.17
Kentucky	1.16
Massachusetts	1.59
Maryland	1.35
Michigan	1.13
Missouri	1.09
North Carolina	1.21
New Jersey	1.29
New York	1.05
Ohio	1.07
Pennsylvania	1.15
Rhode Island	0.47
South Carolina	1.43
Tennessee	1.21
Virginia	1.32
Wisconsin	1.12
West Virginia	1.03

Table II-2
Base and Budget Daily and Seasonal Heat Input and NO_x Emissions of EGU Data

	1995/1996				1996				2007			
	Heat Input		Emissions		Heat Input		Emissions		Heat Input		Budget	
ST	Daily (MMBtu/day)	Seasonal (MMBtu/season)	Daily (tons/day)	Seasonal (tons/season)	Daily (MMBtu/day)	Seasonal (MMBtu/season)	Daily (tons/day)	Seasonal (tons/season)	Daily (MMBtu/day)	Seasonal (MMBtu/season)	Daily (tons/day)	Seasonal (tons/season)
AL	2,503,648	352,462,502	699	26,387	2,503,648	352,425,386	699	99,156	2,754,013	387,708,752	206	29,051
CT	500,695	57,963,067	53	4,304	500,695	57,963,067	53	6,045	300,417	34,777,840	22	2,583
DE	291,168	36,929,685	57	2,774	291,168	36,929,685	57	7,341	369,784	46,900,700	28	3,523
DC	31,698	2,026,082	0	152	2,006	128,205	0	23	43,110	2,755,472	3	207
GA	2,623,259	356,189,138	585	26,774	2,447,655	336,016,010	585	80,736	2,964,282	402,493,727	223	30,255
IL	2,629,757	380,831,882	942	29,672	2,629,757	380,831,882	900	113,741	2,840,138	411,298,433	21	32,045
IN	3,663,468	536,397,099	1,173	41,897	3,663,468	536,397,099	1,173	156,317	4,286,258	627,584,606	335	49,020
KY	2,817,630	418,293,392	1,066	30,106	2,817,630	418,293,392	1,066	150,225	3,268,450	485,220,335	248	36,753
MD	1,088,379	146,326,807	333	10,948	991,312	140,309,532	333	44,779	1,469,311	197,541,191	110	14,807
MA	849,027	124,714,270	108	9,455	849,027	113,610,193	108	14,755	1,349,953	198,295,689	103	15,033
MI	2,125,769	317,207,481	538	24,925	2,125,769	316,869,141	538	79,692	2,402,119	358,444,454	189	28,165
MO	2,000,402	286,136,866	561	21,948	2,000,402	278,158,320	561	79,565	2,180,437	311,889,185	168	23,923
NJ	816,787	102,386,614	135	8,421	793,851	88,723,256	122	14,445	1,053,655	132,078,731	78	10,863
NY	2,704,128	380,092,043	294	28,832	2,370,956	294,737,106	294	37,377	2,839,335	399,096,648	215	30,273
NC	2,575,405	343,950,596	941	25,946	2,575,405	343,950,596	941	125,237	3,116,241	416,180,221	235	31,394
OH	4,157,537	578,736,962	1,644	45,297	4,157,537	578,736,962	1,644	229,886	4,448,564	619,248,549	348	48,468
PA	3,937,388	563,665,148	853	45,218	3,937,388	563,665,148	853	116,304	4,527,996	648,214,923	364	52,000
RI	217,610	31,701,944	17	2,378	217,610	31,701,944	17	2,145	102,277	14,899,914	8	1,118
SC	1,128,591	151,900,826	385	11,391	1,128,591	151,900,826	385	51,822	1,613,885	217,218,182	121	16,290
TN	1,976,188	279,738,759	801	20,980	1,899,491	268,877,789	801	113,329	2,391,187	338,483,899	179	25,386
VA	1,480,154	183,906,327	348	13,832	1,266,114	155,553,455	348	44,508	1,953,803	242,756,353	147	18,258
WV	2,216,129	342,257,483	847	25,669	2,216,129	342,755,795	843	116,758	2,282,613	352,525,208	171	26,439
WI	1,395,215	210,372,259	314	16,046	1,342,849	201,659,868	294	42,407	1,562,641	235,616,930	121	17,972
Total	**43,730,032**	**6,184,187,232**	**12,692**	**473,351**	**42,728,458**	**5,990,194,657**	**12,613**	**1,726,590**	**50,120,470**	**7,081,229,940**	**3,839**	**543,825**

Chapter III
Non-EGU Point Source Data

A. Development of Base Year Data

The non-EGU point source inventory was based on data sets originating with the OTAG 1990 base year inventory. The OTAG prepared these base year inventories with 1990 State ozone SIP emission inventories, and EPA supplemented them with either State inventory data, if available, or EPA's National Emission Trends (NET) data if State data were not available.

For the SNPR, non-EGU point source inventory data for 1990 were then grown to 1995 using Bureau of Economic Analysis (BEA) historical growth estimates of industrial earnings at the State 2-digit Standard Industrial Classification (SIC) level. These emissions were grown to 1995 for the purposes of modeling and to maintain a consistent base year inventory with the EGU data.

NO_x RACT controls were applied to major sources in ozone nonattainment areas (NAA) and the Ozone Transport Region (OTR) unless the area received a NO_x waiver. The data to model NO_x RACT came from the OTAG data base which was developed by surveying applicable States on their implementation of NO_x RACT (Pechan, 1997b). These data include unit specific NO_x RACT control efficiencies for many units. For units without specific control information either ozone nonattainment area/SCC NO_x RACT efficiencies collected from the States or national/SCC NOx RACT default efficiencies were applied. Table III-1 presents the national/SCC NO_x RACT default efficiencies used in the base calculation.

Based on comments submitted during the NPR and SNPR public comment periods, EPA revised the 1995 non-EGU point source inventory with approved data addressing issues such as emission estimate revisions, missing sources, retired sources, incorrect source sizes, base year control levels, and facility name changes. Where 1990 base year data were submitted and accepted, the methods described earlier in this section were utilized to account for growth to 1995 levels. Details of these comments and their affect on the base inventory can be found in the response to significant comments document for the NFR (EPA, 1998a).

B. 2007 Base Case

The inventory data for 1995 was projected to 2007 using BEA projections of Gross State Product (GSP) at the 2-digit SIC level and the Emissions Modeling System-95 (EMS) to generate typical ozone season weekday, Saturday, and Sunday allocations for episodic modeling. Consistent with the SNPR 2007 projection methodology, the growth factors developed were based on the change in projected GSP between 1990 and 2007. The amount of growth estimated to have occurred between 1990 and 1995 was factored out of the 1990 to 2007 growth factors using the following formula:

$$GF_{1995\ to\ 2007} = \frac{GF_{1990\ to\ 2007}}{GF_{1990\ to\ 1995}}$$

where:

$GF_{1995to2007}$ = the 1995 to 2007 growth factor used to project from 1995 to 2007
$GF_{1990to2007}$ = the 1990 to 2007 growth factor used in OTAG to project from 1990 to 2007
$GF_{1990to1995}$ = the 1990 to 1995 growth factor used to project the 1990 OTAG emissions to 1995 for the SIP Call base year data.

The resulting 1995 to 2007 growth factors were applied to the 1995 base year emissions to project 2007 emissions.

In addition to NO_x RACT, MACT control assumptions were applied to large municipal waste combustors (MWC) in the base case. As demonstrated in the supporting TSD, a 30 percent NO_x reduction is attainable and assumed for sources identified by this rule (EPA, 1998b). Appendix A presents the non-EGU point source controls included in the 2007 base case.

Seasonal emissions were calculated by multiplying the weekday emissions by 109 days, and each of the weekend allocations by 22 days to estimate a 153-day ozone season. This seasonal value was then divided by 153 days to estimate the typical ozone day for summary purposes.

C. 2007 Budget Case

To determine assumed control strategy reduction for non-EGU point sources for purposes of calculating the budget, emissions were initially totaled at each source to a primary fuel (SCC) based on decreasing daily NO_x emissions from the base year inventory. This was done to prevent the application of multiple control strategies, and the costs associated with those controls, to units firing multiple fuels. A source category was then assigned to this primary fuel from which NO_x reduction strategies were associated and where deemed applicable. Appendix B presents a list of these categories which are identified in the emissions files by the field name [POD].

For the 2007 budget case calculation, an additional distinction was needed between large (>250 MMBtu/hr or greater than 1 ton NO_x/day) and small (<=250 MMBtu/hr and emitting less than or equal to 1 ton NO_x/day) points for non-EGU sources. Where heat input capacity data were available for a unit, these data were used in determining the source's size. However, a majority of the non-EGU point source records in the inventory did not include boiler capacity data. For these cases, data from EPA’s NET Inventory were used to determine whether a non-EGU source was assumed as a large or small source as was similarly done for NPR budget calculation purposes.

Using data from the NET data base, a default boiler capacity file that contained the mean and median boiler capacities by the first 6-digits of SCCs was developed. For each 6-digit SCC, the file also contained the average daily NO_x emissions for records with boiler capacities closest to 250 MMBtu/hr. These data are listed in Table III-2.

As an example, for the 6-digit SCC "202001", the boiler capacity closest to 250 MMBtu/hr is listed in Table III-2 as 276 MMBtu/hr. If there was only one record with a boiler capacity of 276 MMBtu/hr, the daily NO_x emissions from that unit were included from that record. If more than one record had a boiler capacity of 276 MMBtu/hr, the mean daily emissions of those records was used. Each non-EGU record in the inventory was matched to the file described above based on the first 6-digits of its SCC.

The following rules were then used to determine if a unit's boiler capacity was considered greater than, equal to, or less than 250 MMBtu/hr.

1. If boiler capacity data were provided for the unit, size determination was made based on those data.

2. If boiler capacity data were not provided for the unit and a match could be made to the SNPR non-EGU inventory, the default identification of large sources developed for the SNPR budget calculation was used.

3. If both the mean and median boiler capacity in the file were greater than 300 MMBtu/hr, it was assumed that the record's boiler capacity was greater than 250 MMBtu/hr.

4. If either the mean or median boiler capacity was in between 200 and 300 MMBtu/hr, then the daily NO_x emissions were used to determine the boiler size. If the record's daily NO_x emissions were greater than the average daily NO_x emissions in the default boiler capacity file, it was assumed that the record's boiler capacity was greater than 250 MMBtu/hr. If the record's daily NO_x emissions were less than the average daily NO_x emissions in the default boiler capacity file, it was assumed that the record's boiler capacity was less than 250 MMBtu/hr.

5. If both the mean and median boiler capacity in the file were less than 200 MMBtu/hr, it was assumed that the record's boiler capacity was less than 250 MMBtu/hr.

6. If the record could not be matched to the default boiler capacity file, it was assumed that the record's boiler capacity was less than 250 MMBtu/hr.

Records for which the boiler capacity was estimated to be greater than 250 MMBtu/hr were categorized as large sources. Additionally, 1995 point-level emissions were checked for each record where the boiler capacity was estimated to be less than 250 MMBtu/hr. If the 1995 point-level emissions were more than 1 ton/day, the record was categorized as a large source. Otherwise the record was categorized as a small source.

In contrast to the NPR and SNPR methods of applying a 70 percent control to all large sources and RACT to all medium sources within the affected SIP Call domain, assumed budget reductions were assigned only to large sources in the specific source categories listed in Table III-3. RACT requirements are not assumed for medium or small-sized sources in the budget calculation of the NFR. Emission decreases from sources smaller than the heat input capacity cutoff level, and that emit less than 1 ton of NO_x per ozone season day, are not assumed as part of the budget calculation; these sources are included in the budget at baseline levels. Additionally, those sources without adequate information to determine potentially applicable control techniques are included in the budget at baseline levels.

Budget reductions were estimated from 2007 uncontrolled emission levels first calculated by removing base case control efficiency and rule effectiveness values. The budget reduction percentage was then applied with the same rule effectiveness to estimate budget level emissions. No emission reduction in addition to base case controls are assumed for small sources. No additional VOC or CO controls were applied in the 2007 budget case.

It should be noted that the budget reductions were applied to all sources even if they were less stringent than the existing 2007 base case controls. This resulted in an increase in emissions from the 2007 base case to the 2007 budget case for some sources, but is consistent with the EGU budget calculation. A detailed file of non-EGU sources including emissions, growth, and control information is provided in Appendix D of this document.

D. Non-EGU Emission Summary

Table III-4 is a State-level summary of the seasonal non-EGU data. It contains five month ozone season NO_x emissions for the 2007 base case and the 2007 budget case.

Table III-1
Default NO_x RACT Control Assumptions

SCC	NO_x RACT Control Group	Default NO_x RACT Control Efficiency (Percent)
10200101	Industrial Boiler - PC	50
10200104	Industrial Boiler - Stoker - Overfeed	55
10200201	Industrial Boiler - PC - Wet	50
10200202	Industrial Boiler - PC - Dry	50
10200203	Industrial Boiler - Cyclone	53
10200204	Industrial Boiler - Stoker - Spreader	55
10200205	Industrial Boiler - Stoker - Overfeed	55
10200206	Industrial Boiler - Stoker	55
10200210	Industrial Boiler - Stoker - Overfeed	55
10200212	Industrial Boiler - PC - Dry	50
10200213	Industrial Boiler - PC - Wet	50
10200217	Industrial Boiler - PC	50
10200219	Cogeneration - Coal	50
10200222	Industrial Boiler - PC - Dry	50
10200223	Industrial Boiler - Cyclone	53
10200224	Industrial Boiler - Stoker - Spreader	55
10200225	Industrial Boiler - Stoker - Overfeed	55
10200229	Cogeneration - Coal	50
10200301	Industrial Boiler - PC	50
10200306	Industrial Boiler - Stoker - Spreader	55
10200401	Industrial Boiler - Residual Oil	50
10200402	Industrial Boiler - Residual Oil	50
10200403	Industrial Boiler - Residual Oil	50
10200404	Industrial Boiler - Residual Oil	50
10200405	Cogeneration - Oil Turbines	68
10200501	Industrial Boiler - Distillate Oil	50
10200502	Industrial Boiler - Distillate Oil	50
10200503	Industrial Boiler - Distillate Oil	50
10200504	Industrial Boiler - Distillate Oil	50
10200505	Cogeneration - Oil Turbines	68
10200601	Industrial Boiler - Natural Gas	50

Table III-1
Default NO_x RACT Control Assumptions

SCC	**NO_x RACT Control Group**	**Default NO_x RACT Control Efficiency (Percent)**
10200602	Industrial Boiler - Natural Gas	50
10200603	Industrial Boiler - Natural Gas	50
10200604	Cogeneration - Natural Gas Turbines	84
10200699	Industrial Boiler - Natural Gas	50
10200701	Industrial Boiler - Natural Gas	50
10200704	Industrial Boiler - Natural Gas	50
10200707	Industrial Boiler - Natural Gas	50
10200710	Cogeneration - Natural Gas Turbines	84
10200799	Industrial Boiler - Natural Gas	50
10200802	Industrial Boiler - PC	50
10200804	Cogeneration - Coal	50
10201001	Industrial Boiler - Natural Gas	50
10201002	Industrial Boiler - Natural Gas	50
10201402	Cogeneration - Coal	50
10300101	Industrial Boiler - PC	50
10300102	Industrial Boiler - Stoker - Overfeed	55
10300103	Industrial Boiler - PC	50
10300205	Industrial Boiler - PC - Wet	50
10300206	Industrial Boiler - PC - Dry	50
10300207	Industrial Boiler - Stoker - Overfeed	55
10300208	Industrial Boiler - Stoker	55
10300209	Industrial Boiler - Stoker - Spreader	55
10300211	Industrial Boiler - Stoker - Overfeed	55
10300217	Industrial Boiler - PC	50
10300221	Industrial Boiler - PC - Wet	50
10300222	Industrial Boiler - PC - Dry	50
10300224	Industrial Boiler - Stoker - Spreader	55
10300225	Industrial Boiler - Stoker - Overfeed	55
10300309	Industrial Boiler - Stoker - Spreader	55
10300401	Industrial Boiler - Residual Oil	50
10300402	Industrial Boiler - Residual Oil	50

Table III-1
Default NO_x RACT Control Assumptions

SCC	NO_x RACT Control Group	Default NO_x RACT Control Efficiency (Percent)
10300404	Industrial Boiler - Residual Oil	50
10300501	Industrial Boiler - Distillate Oil	50
10300502	Industrial Boiler - Distillate Oil	50
10300503	Industrial Boiler - Distillate Oil	50
10300504	Industrial Boiler - Distillate Oil	50
10300601	Industrial Boiler - Natural Gas	50
10300602	Industrial Boiler - Natural Gas	50
10300603	Industrial Boiler - Natural Gas	50
10300701	Industrial Boiler - Natural Gas	50
10300799	Industrial Boiler - Natural Gas	50
10301001	Industrial Boiler - Natural Gas	50
10301002	Industrial Boiler - Natural Gas	50
10500205	Process Heaters - Distillate Oil	74
10500206	Process Heaters - Natural Gas	75
10500210	Process Heaters - Other	74
20100101	Gas Turbines - Oil	68
20100102	IC Engines - Oil - Reciprocating	25
20100201	Gas Turbines - Natural Gas	84
20100202	IC Engines - Natural Gas - Reciprocating	30
20100702	Industrial Boiler - Other	50
20100801	Industrial Boiler - Other	50
20100802	Industrial Boiler - Other	50
20100901	Industrial Boiler - Other	50
20200101	Gas Turbines - Oil	68
20200102	IC Engines - Oil - Reciprocating	25
20200103	Cogeneration - Oil Turbines	68
20200104	Cogeneration - Oil Turbines	68
20200201	Gas Turbines - Natural Gas	84
20200202	IC Engines - Natural Gas - Reciprocating	30
20200203	Cogeneration - Natural Gas Turbines	84
20200204	Industrial Cogeneration - Nat. Gas	50

Table III-1
Default NO_x RACT Control Assumptions

SCC	NO_x RACT Control Group	Default NO_x RACT Control Efficiency (Percent)
20200301	Industrial Boiler - Other	50
20200401	Industrial Boiler - Other	50
20200402	Industrial Boiler - Other	50
20200403	Cogeneration - Oil Turbines	68
20200501	IC Engines - Oil - Reciprocating	25
20200901	Industrial Boiler - Other	50
20200902	Industrial Boiler - Other	50
20201001	IC Engines - Natural Gas - Reciprocating	30
20201002	IC Engines - Natural Gas - Reciprocating	30
20300101	IC Engines - Oil - Reciprocating	25
20300102	Gas Turbines - Oil	68
20300201	IC Engines - Natural Gas - Reciprocating	30
20300202	Gas Turbines - Natural Gas	84
20300203	Cogeneration - Natural Gas Turbines	84
20300204	Cogeneration - Natural Gas Turbines	84
20300301	Industrial Boiler - Other	50
20301001	IC Engines - Natural Gas - Reciprocating	30
20400301	Gas Turbines - Natural Gas	84
20400302	Gas Turbines - Oil	68
20400401	IC Engines - Oil - Reciprocating	25
20400402	IC Engines - Oil - Reciprocating	25
30100101	Adipic Acid Manufacturing Plant	81
30101301	Nitric Acid Manufacturing Plant	95
30101302	Nitric Acid Manufacturing Plant	95
30190003	Process Heaters - Natural Gas	75
30190004	Process Heaters - Natural Gas	75
30390001	Process Heaters - Distillate Oil	74
30390003	Process Heaters - Natural Gas	75
30390004	Process Heaters - Other	74
30490001	Process Heaters - Distillate Oil	74
30490003	Process Heaters - Natural Gas	75

Table III-1
Default NO_x RACT Control Assumptions

SCC	NO_x RACT Control Group	Default NO_x RACT Control Efficiency (Percent)
30490004	Process Heaters - Other	74
30590001	Process Heaters - Distillate Oil	74
30590002	Process Heaters - Residual Oil	73
30590003	Process Heaters - Natural Gas	75
30600101	Process Heaters - Distillate Oil	74
30600102	Process Heaters - Natural Gas	75
30600103	Process Heaters - Distillate Oil	74
30600104	Process Heaters - Natural Gas	75
30600105	Process Heaters - Natural Gas	75
30600106	Process Heaters - Natural Gas	75
30600107	Process Heaters - Natural Gas	75
30600111	Process Heaters - Residual Oil	73
30600199	Process Heaters - Other	74
30790001	Process Heaters - Distillate Oil	74
30790002	Process Heaters - Residual Oil	73
30790003	Process Heaters - Natural Gas	75
30890003	Process Heaters - Natural Gas	75
30990001	Process Heaters - Distillate Oil	74
30990002	Process Heaters - Residual Oil	73
30990003	Process Heaters - Natural Gas	75
31000401	Process Heaters - Distillate Oil	74
31000403	Process Heaters - Residual Oil	73
31000404	Process Heaters - Natural Gas	75
31000405	Process Heaters - Natural Gas	75
31390003	Process Heaters - Natural Gas	75
39990001	Process Heaters - Distillate Oil	74
39990002	Process Heaters - Residual Oil	73
39990003	Process Heaters - Natural Gas	75
39990004	Process Heaters - Natural Gas	75
40201001	Process Heaters - Natural Gas	75
40201002	Process Heaters - Distillate Oil	74

Table III-1
Default NO_x RACT Control Assumptions

SCC	NO_x RACT Control Group	Default NO_x RACT Control Efficiency (Percent)
40201003	Process Heaters - Residual Oil	73
40201004	Process Heaters - Natural Gas	75

Table III-2
Default Boiler Capacity Data From the NET

6-Digit SCC	Mean Boiler Capacity (MMBtu/hr)	Median Boiler Capacity (MMBtu/hr)	Boiler Capacity Closest to 250 MMBtu/hr	Daily NO_x (tpd) of Boiler with Capacity Closest to 250 MMBtu/hr
102001	75.97	55	264	2.6597
102002	236.65	150	250	0.7282
102003	150.44	58	87	0.4796
102004	393.35	73	250	0.3292
102005	299.63	80	250	0.1365
102006	251.96	86	250	0.2127
102007	268.49	198	250	0.1313
102008	515.30	420	241	1.0534
102009	348.64	132	250	0.2103
102010	123.57	45	224	0.0848
102011	193.00	193	193	0.1606
102012	252.00	180	246	0.4668
102013	194.81	172	250	0.0351
102014	287.62	297	267	0.1636
103001	49.45	43	137	0.2052
103002	90.28	74	248	1.1403
103003	85.00	93	101	0.1194
103004	113.01	59	245	0.0417
103005	89.05	71	249	0.0468
103006	152.38	97	249	0.0468
103007	211.00	197	197	0.7150
103009	65.18	66	166	0.0132
103010	138.00	138	138	0.0179
103012	240.33	75	200	0.5335
103013	93.45	59	250	0.5194
105001	68.22	58	200	0.0035
105002	106.77	108	115	0.0108
202001	228.87	62	276	1.2046
202002	294.62	9	271	0.5596
202005	62.00	62	62	0.1882
202009	70.00	70	70	0.3557
203001	75.00	35	256	8.0303
203002	29.47	8	197	0.7150
204001	567.14	390	210	0.1043
204004	6.00	6	6	0.0223

Table III-2
Default Boiler Capacity Data From the NET

6-Digit SCC	Mean Boiler Capacity (MMBtu/hr)	Median Boiler Capacity (MMBtu/hr)	Boiler Capacity Closest to 250 MMBtu/hr	Daily NO_x (tpd) of Boiler with Capacity Closest to 250 MMBtu/hr
301001	288.00	288	288	0.6520
301003	760.62	782	445	1.0585
301005	30.50	31	43	0.0143
301006	100.00	100	134	0.1488
301009	31.00	31	31	0.0335
301018	42.00	50	70	0.1422
301021	68.00	68	68	0.0902
301023	149.00	168	168	0.0031
301024	310.00	310	310	2.5889
301026	62.00	40	247	0.3385
301030	45.80	29	75	0.0668
301032	17.33	10	60	0.0005
301033	4.00	4	4	0.0030
301035	65.50	52	130	0.9466
301050	1.50	2	2	0.6707
301125	399.50	56	105	0.2021
301140	86.00	86	86	0.1106
301250	189.33	178	230	0.5717
301800	170.00	170	170	1.1550
301888	103.00	103	156	1.1209
301900	9.36	13	16	0.0166
301999	1027.50	40	74	0.5594
302002	5.00	5	5	0.1122
302004	36.00	36	36	0.0633
302007	17.75	17	35	0.1559
302009	95.20	66	260	0.0059
302010	123.00	123	123	0.6380
302999	17.50	18	30	0.0030
303000	4.50	5	6	0.0019
303003	338.27	160	260	0.6746
303008	355.60	227	227	0.6253
303009	244.23	105	263	0.5550
303014	37.74	21	310	0.1934
303999	10.00	10	10	0.0195
304001	11.00	11	11	0.0092

Table III-2
Default Boiler Capacity Data From the NET

6-Digit SCC	Mean Boiler Capacity (MMBtu/hr)	Median Boiler Capacity (MMBtu/hr)	Boiler Capacity Closest to 250 MMBtu/hr	Daily NO_x (tpd) of Boiler with Capacity Closest to 250 MMBtu/hr
304003	51.33	33	89	0.0127
304004	20.50	21	24	0.0023
304007	24.25	25	36	0.0013
304008	41.00	41	41	0.0624
304020	82.25	93	93	0.1393
304999	28.00	28	52	0.0110
305001	9.20	6	26	0.1109
305002	37.87	21	190	0.0488
305003	17.13	15	29	0.0204
305005	7.00	7	7	0.0033
305006	196.75	230	250	0.4356
305007	724.00	724	248	4.2005
305008	42.00	42	42	0.3154
305009	30.00	30	30	0.0129
305010	106.30	100	221	0.1372
305014	55.53	49	150	3.0135
305015	18.11	10	58	0.0506
305016	100.13	103	172	0.4122
305019	76.33	70	89	1.3739
305020	4.00	4	4	0.0283
305021	19.00	19	19	0.0124
305040	110.00	110	110	0.1642
305999	43.00	43	43	0.1661
306001	127.20	63	250	0.2181
306002	243.83	235	238	0.2882
306003	172.00	232	249	0.3476
306011	5.00	5	5	0.0231
306012	126.00	126	126	0.0888
306099	12.50	13	15	0.0303
306888	41.00	41	41	0.4362
306999	21.17	21	31	0.0814
307001	403.92	338	248	0.1822
307002	340.00	340	52	0.0193
307007	44.67	32	160	0.1408
307008	40.00	40	40	0.4065

Table III-2
Default Boiler Capacity Data From the NET

6-Digit SCC	Mean Boiler Capacity (MMBtu/hr)	Median Boiler Capacity (MMBtu/hr)	Boiler Capacity Closest to 250 MMBtu/hr	Daily NO_x (tpd) of Boiler with Capacity Closest to 250 MMBtu/hr
307013	58.50	59	112	0.0478
307020	24.00	24	37	0.0039
307900	77.33	61	110	0.1716
307999	30.00	25	40	0.1038
308999	46.00	46	46	0.0050
309999	143.17	178	269	0.0564
310002	16.99	6	289	0.1779
310004	39.56	29	118	0.0616
313999	26.00	36	36	0.0013
314999	26.00	36	36	0.0013
390001	5.00	5	5	0.0418
390002	121.50	101	248	4.2005
390004	174.36	71	250	0.3908
390005	32.16	28	141	0.0014
390006	152.17	36	250	0.3908
390007	310.48	80	231	0.1690
390008	4.00	4	4	0.0125
390009	88.60	28	357	0.3891
390010	9.57	11	15	0.0032
390013	14.25	8	39	0.0682
399999	30.00	30	30	0.0475
401002	56.00	56	56	0.0224
402001	30.60	5	133	0.0285
402006	2.00	2	2	0.0032
402008	7.13	8	12	0.0035
402009	69.50	70	133	0.0285
402010	6.67	5	12	0.0035
402013	56.00	56	56	0.1172
402017	3.17	5	5	0.0036
402025	46.00	46	46	0.0050
403001	10.00	10	10	0.0099
403011	1.00	1	1	0.0047
404001	20.00	20	20	0.0035
405001	3.33	4	5	0.0017
405005	3.00	3	3	0.0022

Table III-2
Default Boiler Capacity Data From the NET

6-Digit SCC	Mean Boiler Capacity (MMBtu/hr)	Median Boiler Capacity (MMBtu/hr)	Boiler Capacity Closest to 250 MMBtu/hr	Daily NO_x (tpd) of Boiler with Capacity Closest to 250 MMBtu/hr
406001	56.50	57	70	0.3557
490999	21.00	21	21	0.0348
501001	3345.82	37	375	1.3650
502001	17943.33	245	245	0.0485
502005	1.00	1	1	0.0085
503001	1347.94	10	140	0.3322
503005	276.25	361	361	0.3686

Table III-3
Budget Reduction Levels From Uncontrolled Emissions

Source Category	Budget Reduction Percentage
ICI Boilers - Coal/Wall	60
ICI Boilers - Coal/FBC	60
ICI Boilers - Coal/Stoker	60
ICI Boilers - Coal/Cyclone	60
ICI Boilers - Residual Oil	60
ICI Boilers - Distillate Oil	60
ICI Boilers - Natural Gas	60
ICI Boilers - Process Gas	60
ICI Boilers - LPG	60
ICI Boilers - Coke	60
Gas Turbines - Oil	60
Gas Turbines - Natural Gas	60
Gas Turbines - Jet Fuel	60
Internal Combustion Engines - Oil	90
Internal Combustion Engines - Gas	90
Internal Combustion Engines - Gas, Diesel, LPG	90
Cement Manufacturing - Dry	30
Cement Manufacturing - Wet	30
In-Process; Bituminous Coal; Cement Kiln	30

Table III-4
Base and Budget Ozone Season NO_x Emissions
Non-EGU Point Sources

State	1995 Base*	2007 Base	2007 Budget	Reduction
Alabama	42,190	49,781	37,696	24%
Connecticut	5,674	5,273	5,056	4%
Delaware	1,443	1,781	1,645	8%
District of Columbia	395	310	292	6%
Georgia	28,370	33,939	27,026	20%
Illinois	67,391	55,721	42,011	25%
Indiana	60,348	71,270	44,881	37%
Kentucky	15,736	18,956	14,705	22%
Maryland	14,228	10,982	7,593	31%
Massachusetts	11,611	9,943	9,763	2%
Michigan	65,758	79,034	48,627	38%
Missouri	12,892	13,433	11,054	18%
New Jersey	21,930	22,228	19,804	11%
New York	24,240	25,791	24,128	6%
North Carolina	28,150	34,027	25,984	24%
Ohio	47,014	53,241	35,145	34%
Pennsylvania	78,588	73,748	65,510	11%
Rhode Island	338	327	327	0%
South Carolina	25,675	34,740	25,469	27%
Tennessee	49,794	60,004	35,568	41%
Virginia	36,000	39,765	27,076	32%
West Virginia	41,102	40,192	31,286	22%
Wisconsin	17,852	22,796	17,973	21%
Total	**696,718**	**757,281**	**558,618**	**26%**

* 1995 Base emissions estimated by multiplying typical ozone season daily emissions by 153 days.

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Chapter IV
Stationary Area and Nonroad Source Data

A. Development of Base Year Data

The stationary area and nonroad mobile source inventory was based on data sets originating with the OTAG 1990 base year inventory. These base year inventories were prepared with 1990 State ozone SIP emission inventories supplemented with either State inventory data, if available, or EPA’s National Emission Trends (NET) data if State data were not available. The OTAG 1990 nonroad emission inventories were based primarily on estimates of actual 1990 nonroad activity levels found in the October 1995 edition of EPA’s annual report, "National Air Pollutant Emission Trends." These area and nonroad mobile source inventory data for 1990 were then grown to 1995 using BEA historical growth estimates of industrial earnings at the State 2-digit SIC level.

Based on comments submitted during the NPR and SNPR public comment periods, the 1995 stationary area and nonroad mobile source inventories were revised with data addressing issues such as emission estimate revisions, spacial allocation revisions, and base year control levels. Where 1990 base year data were used, the method described above was utilized to account for growth to 1995 levels. Details of these comments and their affect on the base inventory can be found in the response to significant comments document for the NFR (EPA, 1998a).

B. 2007 Base Case

The inventory data for 1995 was projected to 2007 using BEA projections of Gross State Product (GSP) at the 2-digit SIC level and the Emissions Modeling System-95 (EMS) to generate typical ozone season weekday, Saturday, and Sunday allocations for episodic modeling. Consistent with the SNPR 2007 projection methodology, the growth factors developed were based on the change in projected GSP between 1990 and 2007. The amount of growth estimated to have occurred between 1990 and 1995 was factored out of the 1990 to 2007 growth factors using the following formula:

$$GF_{1995\ to\ 2007} = \frac{GF_{1990\ to\ 2007}}{GF_{1990\ to\ 1995}}$$

where:

$GF_{1995to2007}$ = the 1995 to 2007 growth factor used to project from 1995 to 2007
$GF_{1990to2007}$ = the 1990 to 2007 growth factor used in OTAG to project from 1990 to 2007
$GF_{1990to1995}$ = the 1990 to 1995 growth factor used to project the 1990 OTAG emissions to 1995 for the SIP Call base year data.

The resulting 1995 to 2007 growth factors were applied to the 1995 base year emissions to project 2007 emissions.

In contrast to the SNPR, reductions from certain nonroad mobile controls were assumed to occur in the base case as a result of measures implemented between promulgation of the final rule and base year 2007. These measures include the Federal Small Engine Standards, Phase II; Federal Marine Engine Standards (for diesel engines of greater than 50 horsepower); Federal Locomotive Standards; and the Nonroad Diesel Engine Standards. Controls previously reflected in the budget were not included in the base case in the original SNPR calculations. These measures were included in the base case, rather than the budgets, because the measures would be implemented even in the absence of the final rulemaking. Appendix A presents the stationary area and nonroad mobile control measures included in the 2007 base case.

Resulting seasonal emissions were calculated by multiplying the weekday emissions by 109 days, and each of the weekend allocations by 22 days to estimate a 153-day ozone season. This seasonal value was then divided by 153 days to estimate the typical ozone day for summary purposes.

C. 2007 Budget Case

For stationary area and nonroad mobile sources, no additional reduction was incurred between the base and budget cases. A detailed file of county-level stationary area and nonroad mobile source emissions and growth is provided in Appendices E and F of this document.

D. Stationary Area and Nonroad Emission Summary

Table IV-1 is a State-level summary of the seasonal stationary area and nonroad mobile data. It contains five month ozone season NO_x emissions for the 2007 base and budget cases.

Table IV-1
Base and Budget Ozone Season NO_x Emissions
Stationary Area and Nonroad Mobile

State	1995 Stationary Area*	1995 Nonroad Mobile*	2007 Stationary Area	2007 Nonroad Mobile
Alabama	24,247	29,497	25,225	16,594
Connecticut	4,258	13,101	4,588	9,584
Delaware	1,728	4,355	963	4,261
District of Columbia	838	1,924	741	3,470
Georgia	10,694	37,007	11,902	21,588
Illinois	8,824	76,957	7,822	47,035
Indiana	18,009	44,942	25,544	22,445
Kentucky	35,584	30,979	38,773	19,627
Maryland	4,055	20,463	4,105	17,249
Massachusetts	9,984	25,662	10,090	18,911
Michigan	22,289	35,899	28,128	23,495
Missouri	6,540	36,256	6,603	17,723
New Jersey	10,602	30,629	11,098	21,163
New York	17,294	43,706	15,587	29,260
North Carolina	9,330	30,744	10,651	17,799
Ohio	16,899	62,715	19,425	37,781
Pennsylvania	15,002	50,303	17,103	25,554
Rhode Island	373	3,076	420	2,073
South Carolina	6,748	18,829	8,359	11,903
Tennessee	9,881	66,783	11,990	44,567
Virginia	21,301	35,786	18,622	21,551
West Virginia	5,358	15,471	4,790	10,220
Wisconsin	9,111	25,772	8,160	12,965
Total	**268,949**	**740,856**	**290,689**	**456,818**

* 1995 Base emissions estimated by multiplying typical ozone season daily emissions by 153 days.

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Chapter V
Highway Vehicle Source Data

A. Development of Base Year Data

The highway vehicle source inventory was based on data sets originating with historical 1995 VMT levels from the Highway Performance Monitoring System (HPMS). The HPMS data were used to estimate States' 1995 VMT by vehicle category, except in those cases where EPA accepted revisions per the NPR and SNPR comment periods. These VMT estimates reflect the growth in overall VMT from 1990 to 1995, as well as the increase in light truck and sport-utility vehicle use relative to light-duty vehicle use. The 1995 NO_x emissions inventories also reflect the type and extent of inspection and maintenance programs in effect as of that year and the extent of the Federal reformulated gasoline program. The 1995 highway vehicle budget components are based on EPA's MOBILE5a emission inventory model with corrected default inputs.

B. 2007 Base Case

The EPA is continuing to use the growth methods developed by OTAG for the purpose of projecting VMT growth between 1995 and 2007. Growth in highway mobile sources was modeled by growing the 1995 vehicle miles traveled (VMT). VMT growth factors were developed using data from the MOBILE4.1 Fuel Consumption Model. This model estimates national VMT by vehicle type through the year 2020. To calculate the VMT growth factors, the 1995 and 2007 MOBILE4.1 Fuel Consumption Model VMT was first allocated to MSAs and rest-of-state areas using 1995 population and projected 2007 population estimates. The actual growth factors were calculated as the ratio of the allocated 2007 VMT to the allocated 1995 VMT by MSA or rest-of-state area and road type. Based on comments submitted during the NPR and SNPR public comment periods, EPA revised the base VMT and VMT growth factors were revised with appropriately explained and documented growth estimates. Details of these comments are their affect on the base inventories can be found in the response to significant comments document for the NFR (EPA, 1998a).

Emissions were calculated using average minimum and maximum monthly historical (1970 to 1997) State-level temperatures and NO_x RFG correction in RFG areas. Table V-1 presents these monthly temperatures by State.

In contrast to the SNPR, reductions from certain highway mobile controls were assumed to occur in the base case as a result of measures implemented between promulgation of the final rule and base year 2007. These measures include National Low Emission Vehicle Standards and the 2004 Heavy-Duty Engine Standards. Controls previously reflected in the budget were not included in the base case in the original SNPR calculations. These measures were included in the base case, rather than the budgets, because the measures would be implemented even in the absence of the final rulemaking. Appendix A presents the highway mobile control measures included in the 2007 base case.

C. 2007 Budget Case

For highway mobile sources, no additional reduction was incurred between the base and budget cases. A detailed file of county-level highway mobile source VMT, growth, and emissions is provided in Appendix G of this document.

D. Highway Vehicle Emission Summary

Table V-2 is a State-level summary of the seasonal highway vehicle data. It contains five month ozone season NO_x emissions for the 2007 base and budget cases.

Table V-1
Historical Statewide Average Monthly Minimum and Maximum Temperatures
(Degrees Fahrenheit)

State	May Max	May Min	June Max	June Min	July Max	July Min	August Max	August Min	September Max	September Min
Alabama	80.8	57.9	87.4	65.7	90.5	70.0	89.8	69.2	84.5	63.3
Connecticut	71.9	49.0	80.0	57.0	85.0	62.6	82.7	60.8	74.3	52.1
Delaware	74.9	53.3	83.0	61.9	87.5	67.5	85.9	66.1	79.7	59.2
DC	75.9	56.4	84.5	65.9	88.7	71.1	86.7	69.4	80.0	62.7
Georgia	79.9	59.3	86.4	66.9	89.3	70.6	87.7	69.9	82.4	64.5
Illinois	74.6	52.5	83.8	61.9	87.0	66.0	84.7	64.0	78.3	55.6
Indiana	73.4	51.9	82.2	61.4	85.6	65.5	83.8	63.6	77.3	55.6
Kentucky	76.0	55.3	84.1	64.3	87.8	68.6	86.4	67.2	79.8	60.0
Maryland	74.2	52.8	83.1	62.1	87.5	67.5	85.6	65.9	78.7	59.0
Massachusetts	66.8	50.2	76.7	59.4	82.3	65.5	80.3	64.6	72.5	56.8
Michigan	69.8	50.1	78.8	59.8	83.3	65.2	81.0	63.5	73.3	56.1
Missouri	75.3	53.5	84.3	62.3	89.4	66.9	88.7	65.7	80.0	57.9
New Jersey	72.6	54.1	81.4	63.6	86.3	69.4	84.6	68.0	76.9	60.1
New York	70.4	54.1	79.2	63.6	84.5	69.4	82.9	68.6	75.1	61.4
North Carolina	76.8	54.6	83.8	63.3	87.7	67.9	85.6	66.5	79.6	60.2
Ohio	72.4	50.5	80.8	59.5	84.5	64.0	83.0	62.5	76.1	55.3
Pennsylvania	72.4	51.6	80.9	60.9	85.7	66.2	83.8	64.7	75.9	56.9
Rhode Island	68.4	48.7	77.2	57.8	82.5	64.3	81.0	62.8	73.3	54.4
South Carolina	83.5	58.4	89.2	66.4	92.5	70.7	90.2	69.7	85.5	64.0
Tennessee	78.4	56.6	86.0	65.0	89.6	69.4	88.5	68.2	82.3	61.5
Virginia	77.7	54.6	85.4	63.2	89.2	68.4	87.2	66.8	81.3	60.0
West Virginia	75.0	51.8	81.8	60.0	85.9	65.5	84.3	63.6	77.9	56.8
Wisconsin	65.1	45.8	75.5	56.3	80.5	62.8	78.5	62.0	70.9	54.0

Table V-2
VMT and 2007 Budget Ozone Season NO_x Emissions
Highway Mobile

State	Daily 1995 VMT (thousands)	Daily 2007 VMT (thousands)	Seasonal 2007 VMT (thousands)	Final Budget (tons/season)
Alabama	134,341	165,931	23,642,476	50,111
Connecticut	85,823	105,884	14,960,237	18,762
Delaware	23,101	29,621	4,206,684	8,131
District of Columbia	10,473	13,742	1,946,068	2,082
Georgia	261,911	350,942	49,777,317	86,611
Illinois	258,319	329,567	46,967,435	81,297
Indiana	165,944	200,011	30,253,176	60,694
Kentucky	126,429	155,617	22,133,666	45,841
Maryland	137,769	175,807	24,837,510	27,634
Massachusetts	146,732	181,366	25,608,187	24,371
Michigan	262,502	311,904	44,258,682	83,784
Missouri	182,783	228,386	32,349,941	55,230
New Jersey	186,381	229,501	32,442,260	34,106
New York	351,902	412,077	58,360,433	80,521
North Carolina	190,514	267,983	38,191,543	66,019
Ohio	308,982	371,334	52,640,487	99,079
Pennsylvania	289,803	350,345	49,759,266	92,280
Rhode Island	21,158	25,694	3,611,724	4,375
South Carolina	119,181	154,748	22,025,312	47,404
Tennessee	172,476	222,304	31,546,130	64,965
Virginia	214,559	273,737	38,789,952	70,212
West Virginia	53,765	64,272	9,160,525	20,185
Wisconsin	157,966	196,343	27,941,500	49,470
Total	**3,862,814**	**4,817,116**	**685,410,511**	**1,173,164**

Chapter VI
Statewide NOx Budgets

The Statewide base case and budget emissions were calculated by summing the individual base case and budget emissions components. Table VI-1 shows the seasonal Statewide base case and budget NO_x emissions and the percent reduction between the base case and the budget. Table VI-2 presents the base and budget cases by major source category component.

Table VI-1
Seasonal Statewide NO_x Base and Budgets
(Tons/Season)

State	Final Base	Final Budget	Reduction
Alabama	218,637	158,677	27%
Connecticut	43,843	40,573	7%
Delaware	20,974	18,523	12%
District of Columbia	6,606	6,792	-3%
Georgia	240,495	177,382	26%
Illinois	311,186	210,210	32%
Indiana	316,726	202,584	36%
Kentucky	231,026	155,699	33%
Maryland	92,573	71,388	23%
Massachusetts	79,794	78,168	2%
Michigan	301,041	212,199	30%
Missouri	175,086	114,533	35%
New Jersey	106,947	97,034	9%
New York	190,358	179,769	6%
North Carolina	213,311	151,847	29%
Ohio	372,658	239,898	36%
Pennsylvania	331,787	252,447	24%
Rhode Island	8,277	8,313	0%
South Carolina	138,705	109,425	21%
Tennessee	252,434	182,476	28%
Virginia	191,034	155,719	18%
West Virginia	190,877	92,920	51%
Wisconsin	145,353	106,540	27%
Total	**4,179,728**	**3,023,116**	**28%**

Table VI-1
Seasonal Statewide NO_x Base and Budgets by Major Source Category
(Tons/Season)

	2007 Base NOx Emissions (tons/season)						2007 Budget NOx Emissions (tons/season)					
State	**EGU**	**Non-EGU**	**Area**	**Nonroad**	**Highway**	**Total**	**EGU**	**Non-EGU**	**Area**	**Nonroad**	**Highway**	**Total**
Alabama	76,926	49,781	25,225	16,594	50,111	218,637	29,051	37,696	25,225	16,594	50,111	158,677
Connecticut	5,636	5,273	4,588	9,584	18,762	43,843	2,583	5,056	4,588	9,584	18,762	40,573
Delaware	5,838	1,781	963	4,261	8,131	20,974	3,523	1,645	963	4,261	8,131	18,523
District of Columbia	3	310	741	3,470	2,082	6,606	207	292	741	3,470	2,082	6,792
Georgia	86,455	33,939	11,902	21,588	86,611	240,495	30,255	27,026	11,902	21,588	86,611	177,382
Illinois	119,311	55,721	7,822	47,035	81,297	311,186	32,045	42,011	7,822	47,035	81,297	210,210
Indiana	136,773	71,270	25,544	22,445	60,694	316,726	49,020	44,881	25,544	22,445	60,694	202,584
Kentucky	107,829	18,956	38,773	19,627	45,841	231,026	36,753	14,705	38,773	19,627	45,841	155,699
Maryland	32,603	10,982	4,105	17,249	27,634	92,573	14,807	7,593	4,105	17,249	27,634	71,388
Massachusetts	16,479	9,943	10,090	18,911	24,371	79,794	15,033	9,763	10,090	18,911	24,371	78,168
Michigan	86,600	79,034	28,128	23,495	83,784	301,041	28,165	48,627	28,128	23,495	83,784	212,199
Missouri	82,097	13,433	6,603	17,723	55,230	175,086	23,923	11,054	6,603	17,723	55,230	114,533
New Jersey	18,352	22,228	11,098	21,163	34,106	106,947	10,863	19,804	11,098	21,163	34,106	97,034
New York	39,199	25,791	15,587	29,260	80,521	190,358	30,273	24,128	15,587	29,260	80,521	179,769
North Carolina	84,815	34,027	10,651	17,799	66,019	213,311	31,394	25,984	10,651	17,799	66,019	151,847
Ohio	163,132	53,241	19,425	37,781	99,079	372,658	48,468	35,145	19,425	37,781	99,079	239,898
Pennsylvania	123,102	73,748	17,103	25,554	92,280	331,787	52,000	65,510	17,103	25,554	92,280	252,447
Rhode Island	1,082	327	420	2,073	4,375	8,277	1,118	327	420	2,073	4,375	8,313
South Carolina	36,299	34,740	8,359	11,903	47,404	138,705	16,290	25,469	8,359	11,903	47,404	109,425
Tennessee	70,908	60,004	11,990	44,567	64,965	252,434	25,386	35,568	11,990	44,567	64,965	182,476
Virginia	40,884	39,765	18,622	21,551	70,212	191,034	18,258	27,076	18,622	21,551	70,212	155,719
West Virginia	115,490	40,192	4,790	10,220	20,185	190,877	26,439	31,286	4,790	10,220	20,185	92,920
Wisconsin	51,962	22,796	8,160	12,965	49,470	145,353	17,972	17,973	8,160	12,965	49,470	106,540
Total	**1,501,775**	**757,282**	**290,689**	**456,818**	**1,173,164**	**4,179,728**	**543,826**	**558,619**	**290,689**	**456,818**	**1,173,164**	**3,023,116**

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APPENDIX A

2007 BASE CASE CONTROLS

Table A-1
2007 Base Case Controls

EGU	- Title IV Controls [phase 1 & 2] - 250 Ton PSD and NSPS - RACT & NSR in non-waived NAAs
Non-EGU Point	- NO_x RACT on major sources in non-waived NAAs - 250 Ton PSD and NSPS - NSR in non-waived NAAs - CTG & Non-CTG VOC RACT at major sources in NAAs & OTR - New Source LAER - NO_x MACT standards to municipal waste combustors (MWCs)
Stationary Area	- Two Phases of VOC Consumer and Commercial Products & One Phase of Architectural Coatings controls - VOC Stage 1 & 2 Petroleum Distribution Controls in NAAs - VOC Autobody, Degreasing & Dry Cleaning controls in NAAs
Nonroad Mobile	- Fed Phase II Small Eng. Stds - Fed Marine Eng. Stds. - Fed Nonroad Heavy-Duty (>=50 hp) Engine Stds - Phase 1 - Fed RFG II (statutory and opt-in areas) - 9.0 RVP maximum elsewhere in OTAG domain - Fed Locomotive Stds (not including rebuilds) - Fed Nonroad Diesel Engine Stds - Phases 2 & 3 - On-board vapor recovery
Highway Vehicles	- National LEV - Fed RFG II (statutory and opt-in areas) - Phase II RVP limits elsewhere in OTAG domain - High Enhanced, Low Enhanced, or Basic I/M in areas specified by State - Clean Fuel Fleets (mandated NAAs) - HDV 2 gm std

APPENDIX B

NON-EGU POINT SOURCE CATEGORY CODES

Table B-1
Non-EGU Point Source Category Codes and Descriptions

POD	Source Category
0	No Match
11	ICI Boilers - Coal/Wall
12	ICI Boilers - Coal/FBC
13	ICI Boilers - Coal/Stoker
14	ICI Boilers - Coal/Cyclone
15	ICI Boilers - Residual Oil
16	ICI Boilers - Distillate Oil
17	ICI Boilers - Natural Gas
18	ICI Boilers - Wood/Bark/Stoker
19	ICI Boilers - Wood/Bark/FBC
20	ICI Boilers - MSW/Stoker
21	Internal Combustion Engines - Oil
22	Internal Combustion Engines - Gas
23	Gas Turbines - Oil
24	Gas Turbines - Natural Gas
25	Process Heaters - Distillate Oil
26	Process Heaters - Residual Oil
27	Process Heaters - Natural Gas
28	Adipic Acid Manufacturing
29	Nitric Acid Manufacturing
30	Glass Manufacturing - Container
31	Glass Manufacturing - Flat
32	Glass Manufacturing - Pressed
33	Cement Manufacturing - Dry
34	Cement Manufacturing - Wet
35	Iron & Steel Mills - Reheating
36	Iron & Steel Mills - Annealing
37	Iron & Steel Mills - Galvanizing
38	Municipal Waste Combustors
39	Medical Waste Incinerators
40	Open Burning
41	ICI Boilers - Process Gas
42	ICI Boilers - Coke
43	ICI Boilers - LPG
44	ICI Boilers - Bagasse
45	ICI Boilers - Liquid Waste
46	IC Engines - Gas, Diesel, LPG
47	Process Heaters - Process Gas
48	Process Heaters - LPG
49	Process Heaters - Other Fuel
50	Gas Turbines - Jet Fuel
51	Engine Testing - Natural Gas
52	Engine Testing - Diesel GT

Table B-1
Non-EGU Point Source Category Codes and Descriptions

POD	Source Category
53	Engine Testing - Oil IC
54	Space Heaters - Distillate Oil
55	Space Heaters - Natural Gas
56	Ammonia - NG-Fired Reformers
57	Ammonia - Oil-Fired Reformers
58	Lime Kilns
59	Comm./Inst. Incinerators
60	Indust. Incinerators
61	Sulfate Pulping - Recovery Furnaces
62	Ammonia Prod; Feedstock Desulfurization
63	Plastics Prod-Specific; (ABS) Resin
64	Starch Mfg; Combined Operations
65	By-Product Coke Mfg; Oven Underfiring
66	Pri Cop Smel; Reverb Smelt Furn
67	Iron Prod; Blast Furn; Blast Htg Stoves
68	Steel Prod; Soaking Pits
69	Fuel Fired Equip; Process Htrs; Pro Gas
70	Sec Alum Prod; Smelting Furn/Reverb
71	Steel Foundries; Heat Treating Furn
72	Fuel Fired Equip; Furnaces; Natural Gas
73	Asphaltic Conc; Rotary Dryer; Conv Plant
74	Ceramic Clay Mfg; Drying
75	Coal Cleaning-Thrml Dryer; Fluidized Bed
76	Fbrglass Mfg; Txtle-Type Fbr; Recup Furn
77	Sand/Gravel; Dryer
78	Fluid Cat Cracking Units; Cracking Unit
79	Conv Coating of Prod; Acid Cleaning Bath
80	Natural Gas Prod; Compressors
81	In-Process; Bituminous Coal; Cement Kiln
82	In-Process; Bituminous Coal; Lime Kiln
83	In-Process Fuel Use;Bituminous Coal; Gen
84	In-Process Fuel Use; Residual Oil; Gen
85	In-Process Fuel Use; Natural Gas; Gen
86	In-Proc;Process Gas;Coke Oven/Blast Furn
87	In-Process; Process Gas; Coke Oven Gas
88	Surf Coat Oper;Coating Oven Htr;Nat Gas
89	Solid Waste Disp;Gov;Other Incin;Sludge

APPENDIX C

SOURCE SPECIFIC EGU BASE AND BUDGET EMISSIONS FILE

Table C-1
Regional NOx SIP Call EGU Point Source File
File Format

Filename: NFREGU.TXT
Description: Regional NOx SIP Call Base and Budget Determination EGU Point Source File
Location: ftp.epa.gov/pub/scram001/modelingcenter/budget/

Variable	Type	Length	Decimal	Description
FIPSST	C	2	0	FIPS State Code
FIPSCNTY	C	3	0	FIPS County Code
ORISID	C	6	0	ORIS ID Code
PLANTID	C	15	0	Plant ID Code
PLANT	C	35	0	Plant Name
BLRID	C	15	0	Boiler ID Code
POINTID	C	15	0	Point ID Code
STACKID	C	15	0	Stack ID Code
SEGMENT	C	15	0	Segement ID
SCC	C	10	0	Source Classification Code
SIC	N	4	0	Standard Industrial Classification Code
HEAT_RATE	N	10	2	Heat Rate
STKHGT	N	4	0	Stack Height (ft)
STKDIAM	N	6	2	Stack Diameter (ft)
STKTEMP	N	4	0	Stack Temperature (degrees F)
STKFLOW	N	10	2	Stack Flow (cu. ft./min)
STKVEL	N	9	2	Stack Velocity (ft/sec)
LAT	N	9	4	Latitude (degrees)
LON	N	9	4	Longitude (degrees)
BOILCAP	N	8	2	Boiler Capacity (MW)
YEAR9596	N	4	0	Indicates 1995 or 1996 data used for Base File
SHEAT95	N	15	1	1995 Ozone Season Heat Input (MMBtu)
SHEAT96	N	15	1	1996 Ozone Season Heat Input (MMBtu)
SHEAT9596	N	15	1	Base Ozone Season Heat Input (MMBtu) based on YEAR9596
DHEAT95	N	15	1	1995 Typical Ozone Season Daily Heat Input (MMBtu)
DHEAT96	N	15	1	1996 Typical Ozone Season Daily Heat Input (MMBtu)
DHEAT9596	N	15	1	Base Typical Ozone Season Daily Heat Input (MMBtu) based on YEAR9596
RATE95	N	15	5	1995 NOx Emission Rate (lbs/MMBtu)
RATE96	N	15	5	1996 NOx Emission Rate (lbs/MMBtu)
DNOX9596	N	11	5	Base Typical Ozone Season Daily NOx Emissions (tons)
SNOX9596	N	11	5	Base Ozone Season NOx Emissions (tons)
SNOX95	N	13	5	1995 Ozone Season NOx Emissions (tons)
SVOC95	N	13	5	1995 Ozone Season VOC Emissions (tons)
SCO95	N	13	5	1995 Ozone Season CO Emissions (tons)
SNOX96	N	13	5	1996 Ozone Season NOx Emissions (tons)
SVOC96	N	13	5	1996 Ozone Season VOC Emissions (tons)
SCO96	N	13	5	1996 Ozone Season CO Emissions (tons)
DNOX95	N	13	5	1995 Typical Ozone Season Daily NOx Emissions (tons)
DVOC95	N	13	5	1995 Typical Ozone Season Daily VOC Emissions (tons)
DCO95	N	13	5	1995 Typical Ozone Season Daily CO Emissions (tons)
DNOX96	N	13	5	1996 Typical Ozone Season Daily NOx Emissions (tons)
DVOC96	N	13	5	1996 Typical Ozone Season Daily VOC Emissions (tons)
DCO96	N	13	5	1996 Typical Ozone Season Daily CO Emissions (tons)
GRX07	N	5	3	IPM 2007 Projected Growth Rate
DHEAT07	N	15	1	2007 Typical Ozone Season Daily Projected Heat Input (MMBtu)
SHEAT07	N	15	1	2007 Ozone Season Projected Heat Input (MMBtu)
DVOC07	N	13	5	2007 Typical Ozone Season Daily VOC Emissions (tons)
DCO07	N	13	5	2007 Typical Ozone Season Daily CO Emissions (tons)
SVOC07	N	13	5	2007 Ozone Season VOC Emissions (tons)
SCO07	N	13	5	2007 Ozone Season CO Emissions (tons)
BRATE07	N	15	5	2007 Budget NOx Emission Rate (lbs/MMBtu)
BDNOX07	N	13	5	2007 Typical Ozone Season Daily Budget NOx Emissions (tons)
BSNOX07	N	13	5	2007 Ozone Season Budget NOx Emissions (tons)

APPENDIX D

SOURCE SPECIFIC NON-EGU POINT SOURCE BASE AND BUDGET EMISSIONS FILE

Table D-1
Regional NOx SIP Call Non-EGU Point Source File
File Format

Filename: NFRPT.TXT
Description: Regional NOx SIP Call Non-EGU Point Source File
Location: ftp.epa.gov/pub/scram001/modelingcenter/budget/

Variable	Type	Length	Decimal	Description
FIPSST	C	2	0	FIPS State Code
FIPSCNTY	C	3	0	FIPS County Code
PLANTID	C	15	0	Plant ID Code
PLANT	C	40	0	Plant Name
POINTID	C	15	0	Point ID Code
STACKID	C	15	0	Stack ID Code
SEGMENT	C	15	0	Segment ID
SCC	C	10	0	Source Classification Code
POD	C	3	0	Source Category Association
NEWSIZE	C	1	0	Budget Size
BOILCAP	N	8	0	Boiler Design Capacity (MMBtu/hr)
STKHGT	N	4	0	Stack Height (ft)
STKDIAM	N	6	2	Stack Diameter (ft)
STKTEMP	N	4	0	Stack Temperature (degrees F)
STKFLOW	N	10	2	Stack Flow (cu. ft./min)
STKVEL	N	9	2	Stack Velocity (ft/sec)
WINTHRU	N	3	0	Winter Throughput Percentage
SPRTHRU	N	3	0	Spring Throughput Percentage
SUMTHRU	N	3	0	Summer Throughput Percentage
FALTHRU	N	3	0	Fall Throughput Percentage
HOURS	N	2	0	Operating Hours/Day
DAYS	N	1	0	Operating Days/Weeks
WEEKS	N	2	0	Operating Weeks/Year
SIC	N	4	0	Standard Industrial Classification Code
LATC	N	9	4	Latitude (degrees)
LONC	N	9	4	Longitiude (degrees)
NOXCE95	N	5	2	1995 NOx Control Efficiency
COCE95	N	5	2	1995 CO Control Efficiency
VOCCE95	N	5	2	1995 VOC Control Efficiency
NOXRE95	N	5	2	1995 NOx Rule Effectiveness
CORE95	N	5	2	1995 CO Rule Effectiveness
VOCRE95	N	5	2	1995 VOC Rule Effectiveness
DNOX95	N	16	4	1995 Typical Ozone Season Daily NOx Emissions (tons)
DCO95	N	16	4	1995 Typical Ozone Season Daily CO Emissions (tons)
DVOC95	N	16	4	1995 Typical Ozone Season Daily VOC Emissions (tons)
GF9507	N	7	2	1995 - 2007 Growth Factor
THU_NOX07	N	16	5	2007 Ozone Season Weekday NOx Emissions (tons)
THU_CO07	N	16	5	2007 Ozone Season Weekday CO Emissions (tons)
THU_VOC07	N	16	5	2007 Ozone Season Weekday VOC Emissions (tons)
SAT_NOX07	N	16	5	2007 Ozone Season Saturday NOx Emissions (tons)
SAT_CO07	N	16	5	2007 Ozone Season Saturday CO Emissions (tons)
SAT_VOC07	N	16	5	2007 Ozone Season Saturday VOC Emissions (tons)
SUN_NOX07	N	16	5	2007 Ozone Season Sunday NOx Emissions (tons)
SUN_CO07	N	16	5	2007 Ozone Season Sunday CO Emissions (tons)
SUN_VOC07	N	16	5	2007 Ozone Season Sunday VOC Emissions (tons)
NOXRE07	N	5	2	2007 NOx Rule Effectiveness
CORE07	N	5	2	2007 CO Rule Effectiveness
VOCRE07	N	5	2	2007 VOC Rule Effectiveness
NOXCE07	N	5	2	2007 Base NOx Control Efficiency
COCE07	N	5	2	2007 Base CO Control Efficiency

Table D-1
Regional NOx SIP Call Non-EGU Point Source File
File Format

Variable	Type	Length	Decimal	Description
VOCCE07	N	5	2	2007 Base VOC Control Efficiency
SNOX07	N	16	4	2007 Ozone Season Base NOx Emissions (tons)
SCO07	N	16	4	2007 Ozone Season Base CO Emissions (tons)
SVOC07	N	16	4	2007 Ozone Season Base VOC Emissions (tons)
DNOX07	N	16	5	2007 Typical Ozone Season Daily NOx Emissions (tons)
DCO07	N	16	5	2007 Typical Ozone Season Daily CO Emissions (tons)
DVOC07	N	16	5	2007 Typical Ozone Season Daily VOC Emissions (tons)
NOXCE07B	N	5	2	2007 Budget NOx Control Efficiency
SBNOX	N	16	4	2007 Ozone Season Budget NOx Emissions (tons)
DBNOX	N	16	5	2007 Typical Ozone Season Daily Budget NOx Emissions (tons)

APPENDIX E

COUNTY LEVEL STATIONARY AREA BASE AND BUDGET EMISSIONS FILE

Table E-1
Regional NOx SIP Call Stationary Area Source File
File Format

Filename: NFRAR.TXT
Description: Regional NOx SIP Call Stationary Area Source File
Location: ftp.epa.gov/pub/scram001/modelingcenter/budget/

Variable	Type	Length	Decimal	Description
FIPSST	C	2	0	FIPS State Code
FIPSCNTY	C	3	0	FIPS County Code
SCC	C	10	0	Source Classification Code
NOX95	N	10	4	1995 Typical Ozone Season Daily NOx Emissions (tons)
CO95	N	10	4	1995 Typical Ozone Season Daily CO Emissions (tons)
VOC95	N	10	4	1995 Typical Ozone Season Daily VOC Emissions (tons)
GR9507	N	7	2	1995 - 2007 Growth Factor
THU_NOX07	N	10	4	2007 Ozone Season Weekday NOx Emissions (tons)
THU_CO07	N	10	4	2007 Ozone Season Weekday CO Emissions (tons)
THU_VOC07	N	10	4	2007 Ozone Season Weekday VOC Emissions (tons)
SAT_NOX07	N	10	4	2007 Ozone Season Saturday NOx Emissions (tons)
SAT_CO07	N	10	4	2007 Ozone Season Saturday CO Emissions (tons)
SAT_VOC07	N	10	4	2007 Ozone Season Saturday VOC Emissions (tons)
SUN_NOX07	N	10	4	2007 Ozone Season Sunday NOx Emissions (tons)
SUN_CO07	N	10	4	2007 Ozone Season Sunday CO Emissions (tons)
SUN_VOC07	N	10	4	2007 Ozone Season Sunday VOC Emissions (tons)
SNOX07	N	10	4	2007 Ozone Season NOx Emissions (tons)
SCO07	N	10	4	2007 Ozone Season CO Emissions (tons)
SVOC07	N	10	4	2007 Ozone Season VOC Emissions (tons)
DNOX07	N	10	4	2007 Typical Ozone Season Daily NOx Emissions (tons)
DCO07	N	10	4	2007 Typical Ozone Season Daily CO Emissions (tons)
DVOC07	N	10	4	2007 Typical Ozone Season Daily VOC Emissions (tons)

APPENDIX F

COUNTY LEVEL NONROAD MOBILE BASE AND BUDGET EMISSIONS

Table F-1
Regional NOx SIP Call Nonroad Mobile Source File
File Format

Filename: NFRNR.TXT
Description: Regional NOx SIP Call Nonroad Mobile Source File
Location: ftp.epa.gov/pub/scram001/modelingcenter/budget/

Variable	Type	Length	Decimal	Description
FIPSST	C	2	0	FIPS State Code
FIPSCNTY	C	3	0	FIPS County Code
SCC	C	10	0	Source Classification Code
NOX95	N	10	4	1995 Typical Ozone Season Daily NOx Emissions (tons)
CO95	N	10	4	1995 Typical Ozone Season Daily CO Emissions (tons)
VOC95	N	10	4	1995 Typical Ozone Season Daily VOC Emissions (tons)
GR9507	N	7	2	1995 - 2007 Growth Factor
THU_NOX07	N	10	4	2007 Ozone Season Weekday NOx Emissions (tons)
THU_CO07	N	10	4	2007 Ozone Season Weekday CO Emissions (tons)
THU_VOC07	N	10	4	2007 Ozone Season Weekday VOC Emissions (tons)
SAT_NOX07	N	10	4	2007 Ozone Season Saturday NOx Emissions (tons)
SAT_CO07	N	10	4	2007 Ozone Season Saturday CO Emissions (tons)
SAT_VOC07	N	10	4	2007 Ozone Season Saturday VOC Emissions (tons)
SUN_NOX07	N	10	4	2007 Ozone Season Sunday NOx Emissions (tons)
SUN_CO07	N	10	4	2007 Ozone Season Sunday CO Emissions (tons)
SUN_VOC07	N	10	4	2007 Ozone Season Sunday VOC Emissions (tons)
SNOX07	N	10	4	2007 Ozone Season NOx Emissions (tons)
SCO07	N	10	4	2007 Ozone Season CO Emissions (tons)
SVOC07	N	10	4	2007 Ozone Season VOC Emissions (tons)
DNOX07	N	10	4	2007 Typical Ozone Season Daily NOx Emissions (tons)
DCO07	N	10	4	2007 Typical Ozone Season Daily CO Emissions (tons)
DVOC07	N	10	4	2007 Typical Ozone Season Daily VOC Emissions (tons)

APPENDIX G

COUNTY LEVEL HIGHWAY MOBILE BASE AND BUDGET EMISSIONS FILE

Table G-1
Regional NOx SIP Call Highway Mobile Source File
File Format

Filename: NFRMB.TXT
Description: Regional NOx SIP Call Highway Mobile Source File
Location: ftp.epa.gov/pub/scram001/modelingcenter/budget/

Variable	Type	Length	Decimal	Description
FIPSST	C	2	0	FIPS State Code
FIPSCNTY	C	3	0	FIPS County Code
SCC	C	10	0	Source Classification Code
V_TYPE	C	5	0	Vehicle Type
DVMT95	N	16	3	1995 Typical Ozone Season Daily Vehicle Miles Traveled (VMT)
GR9507	N	5	3	1995 to 2007 VMT Growth Factor
DVMT07	N	16	3	2007 Typical Ozone Season Daily VMT
SVMT07	N	16	3	2007 Ozone Season VMT
SNOX07	N	13	6	2007 Ozone Season NOx Emissions (tons)
SCO07	N	13	6	2007 Ozone Season CO Emissions (tons)
SVOC07	N	13	6	2007 Ozone Season VOC Emissions (tons)
MAY_VOC07	N	13	6	2007 May VOC Emissions (tons)
JUN_VOC07	N	13	6	2007 June VOC Emissions (tons)
JUL_VOC07	N	13	6	2007 July VOC Emissions (tons)
AUG_VOC07	N	13	6	2007 August VOC Emissions (tons)
SEP_VOC07	N	13	6	2007 September VOC Emissions (tons)
MAY_NOX07	N	13	6	2007 May NOx Emissions (tons)
JUN_NOX07	N	13	6	2007 June NOx Emissions (tons)
JUL_NOX07	N	13	6	2007 July NOx Emissions (tons)
AUG_NOX07	N	13	6	2007 August NOx Emissions (tons)
SEP_NOX07	N	13	6	2007 September NOx Emissions (tons)
MAY_CO07	N	13	6	2007 May CO Emissions (tons)
JUN_CO07	N	13	6	2007 June CO Emissions (tons)
JUL_CO07	N	13	6	2007 July CO Emissions (tons)
AUG_CO07	N	13	6	2007 August CO Emissions (tons)
SEP_CO07	N	13	6	2007 September CO Emissions (tons)
MAY_VMT07	N	16	3	2007 May VMT
JUN_VMT07	N	16	3	2007 June VMT
JUL_VMT07	N	16	3	2007 July VMT
AUG_VMT07	N	16	3	2007 August VMT
SEP_VMT07	N	16	3	2007 September VMT